

The TraceFish standard

- A tool for integration of the fish value chain

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This presentation

1. Definition of traceability
2. Traceability drivers and relevance
3. The TraceFish standards
4. Ongoing research
5. Implementations of the Tracefish standards
6. Why is the TraceFish standard a tool for chain integration

Definition of traceability - ISO 8402

Traceability:

***Ability** to trace the history, application or location of an entity by means of recorded identifications.*

In a product sense, this means that if the product, or the traceable unit containing the product, is given a unique identifier, it shall be possible to trace/access the following information;

- the origin of materials and parts
- the product processing history
- the distribution and location of the product

Types of traceability

→ Internal traceability (Your own data)

Internal traceability is within company or location which is under consideration. In terms of a product it relates to the origin of materials, the processing history, and the distribution of the product after delivery

→ Chain traceability (The data you get, and give)

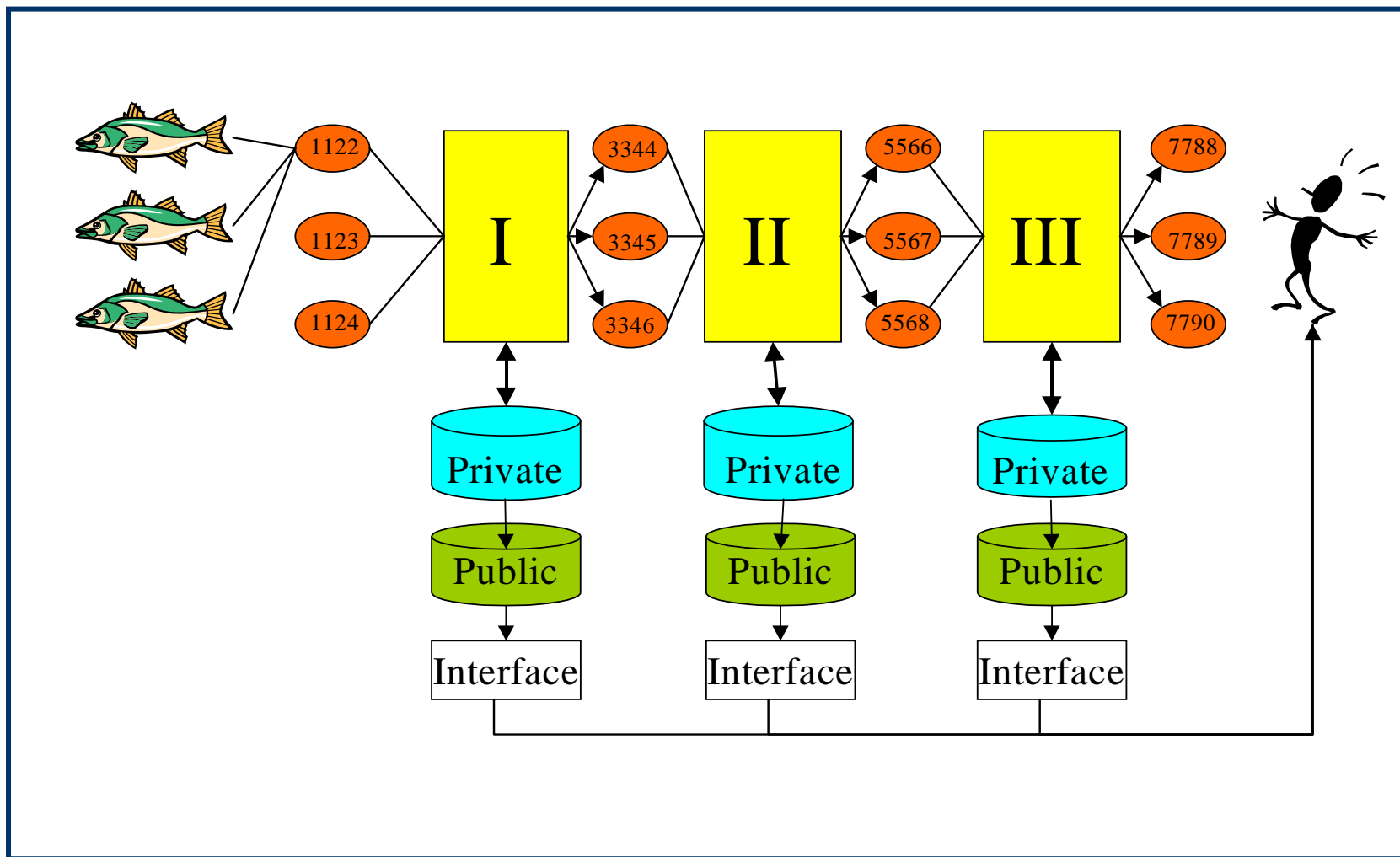
Chain traceability is between companies and countries and depends on the presence of internal traceability in each link. Standards for information exchange needed.

Traceability control mechanisms

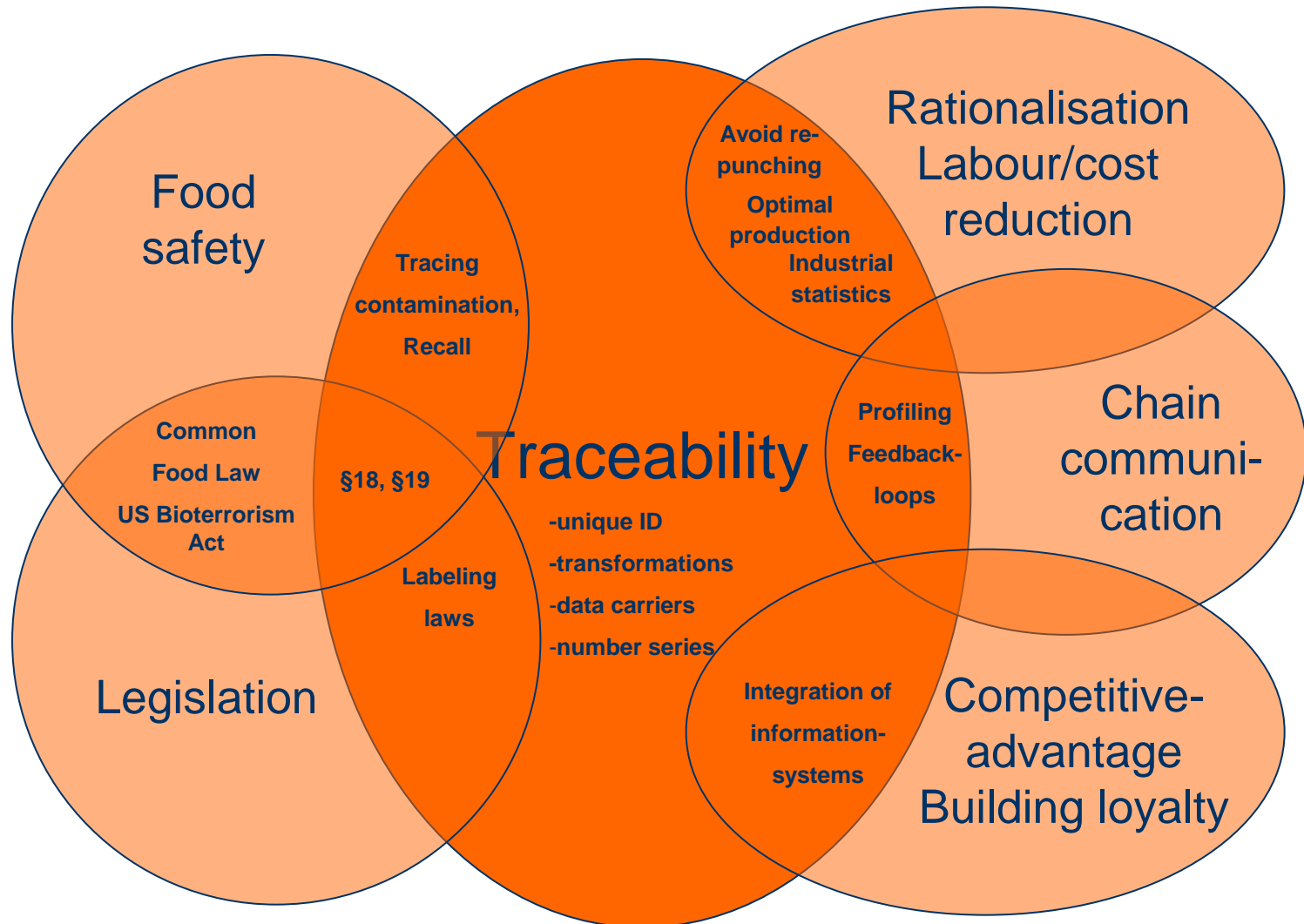
Methods and instruments used for authentication and testing that what we receive is what the documentation says.

Chain Traceability (Pull based)

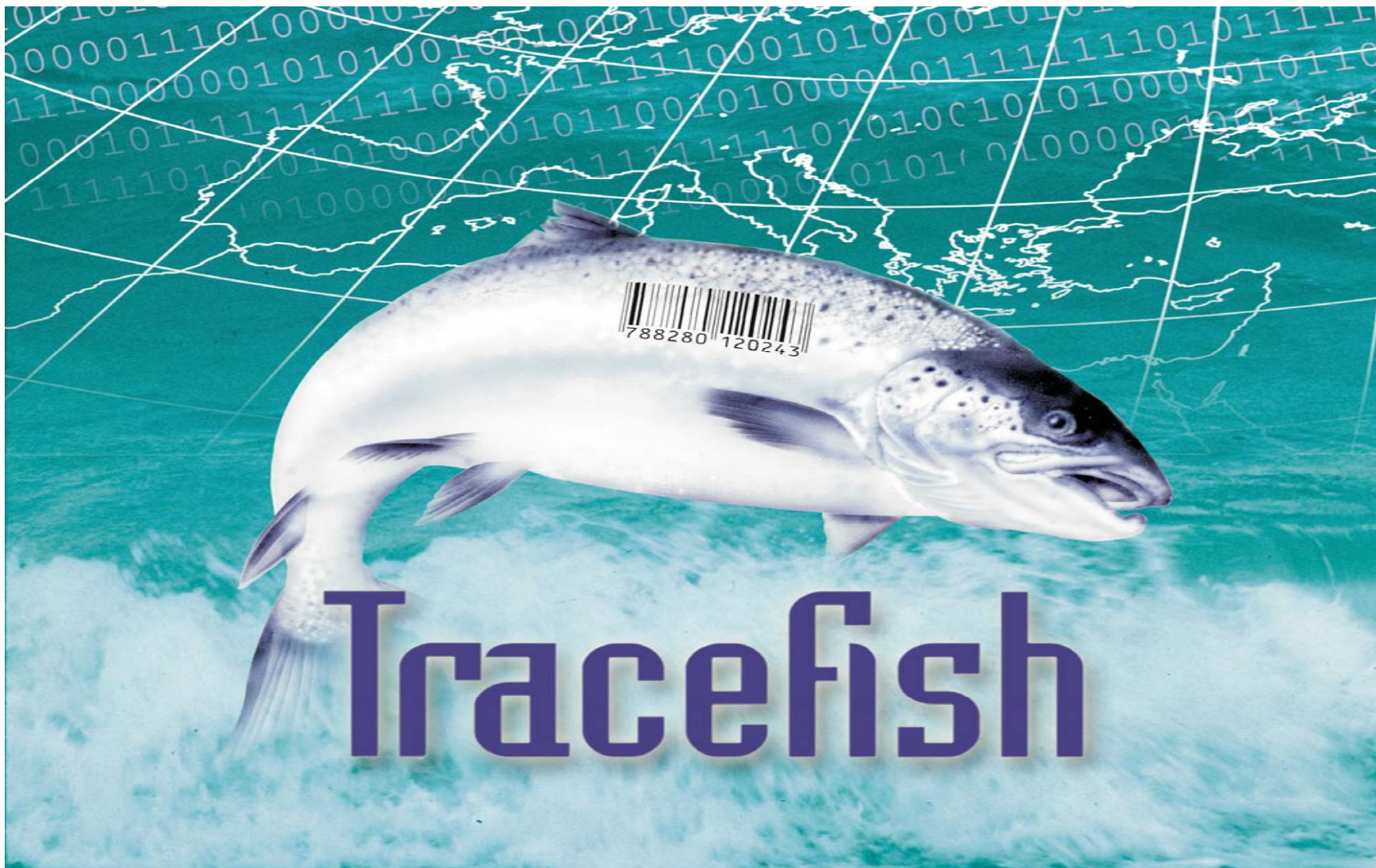
(Petter Olsen model)



Applications of traceability (Petter Olsen model)



The TraceFish Logo



TRACEFISH – standards

- Voluntary industry standards

The CEN (WA) standards describes:

- for full-chain traceability, what data to be recorded, how and where in the captured fish chain.
- for full-chain traceability, what data to be recorded how and where in the farmed fish chain.

The TraceFish Technical standard describes:

- how to code, transmit or to make these data available in electronic form, (XML format)

The TraceFish standards in short;

- A recipe for how to implement traceability in a standardized and structured way, by recording data needed to trace origin, process history, product properties and distribution route
- Makes standardized data available on electronic form
- Cover most international requirements on traceability set by authorities and supermarkets (i.e. EU 178/2002, US Bioterrorism Act)
- The first standard for food chain traceability

TraceFish standard- vital characteristics

- 1 Information categories
 - 2 The concept of traceable units and their unique identification
 - 3 Concept of linking information to the unique ID
 - 3 Keeping track of transformations
 - 4 Stages to record information
 - 5 The data registration form and its structure
- TraceFish technical standard
 - XML standard for structured electronic data exchange

1 Information categories

- Identification of the traceable unit and keeping track of transformations (refers to “by means of recorded identifications”)
- Linking product data to the traceable unit
 - Origin
 - Process history
 - Properties
 - Location
- In the standard data are further split into shall, should and may groups

Shall, Should, May

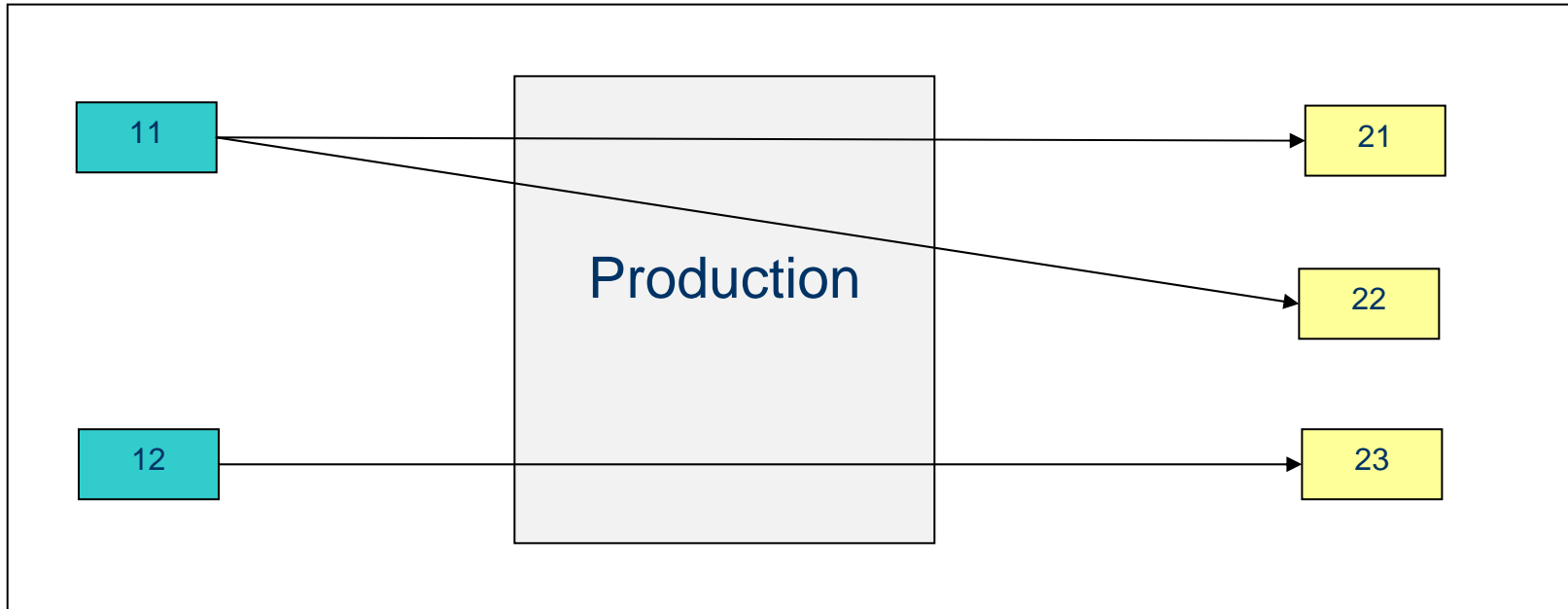
- **"Shall"** contains information needed to identify and physically trace the units through a supply chain
 - i.e. Food business ID, Trade Unit ID (fish, feed, etc), Date and time of reception, Net weight, Next food business ID, Date and time of Dispatch
- **"Should"** contains information recommended to be registered due to requirements set by law, supermarkets or good practice
 - i.e. Location of Fish farm, Size distribution, Starving period, Disease record,
- **"May"** is information frequently used by and exchanged between companies but not important for traceability reasons
 - Fat content, Colour, Average weight; Treatment record

2 The concept of traceable units and their unique identification

- TraceFish specifies a global unique identifier for trade units: GTIN + (using the EAN/GS1 numbering system)
- GTIN + (unique identification of trade unit);
 - GTIN
 - Batch Number
 - Serial Number

| Description | EAN identifications | EAN AI | Example |
|-------------|---------------------------------------|-------------------------------|--|
| Trade unit | GTIN Batch number Serial number | AI (01) AI (10) AI (21) | (01)17030640000016 (10)1234567cc01dd4kk7890 (21)01234567891011121314 |

3 Keeping track of transformations



- A standard method for keeping track of splitting and merging of units, thus input units are linked to created units in a documented manner, which further more are linked to dispatched units (both ways; related created units and related received units). This means that internal traceability is taken care of.

4 Stages to register information

1. When raw materials and ingredients arrives at the food business operator (For each unit received)
2. When raw materials and ingredients goes into the production (For each unit created)
3. When produced units are dispatched from the food business operator (For each unit dispatched)

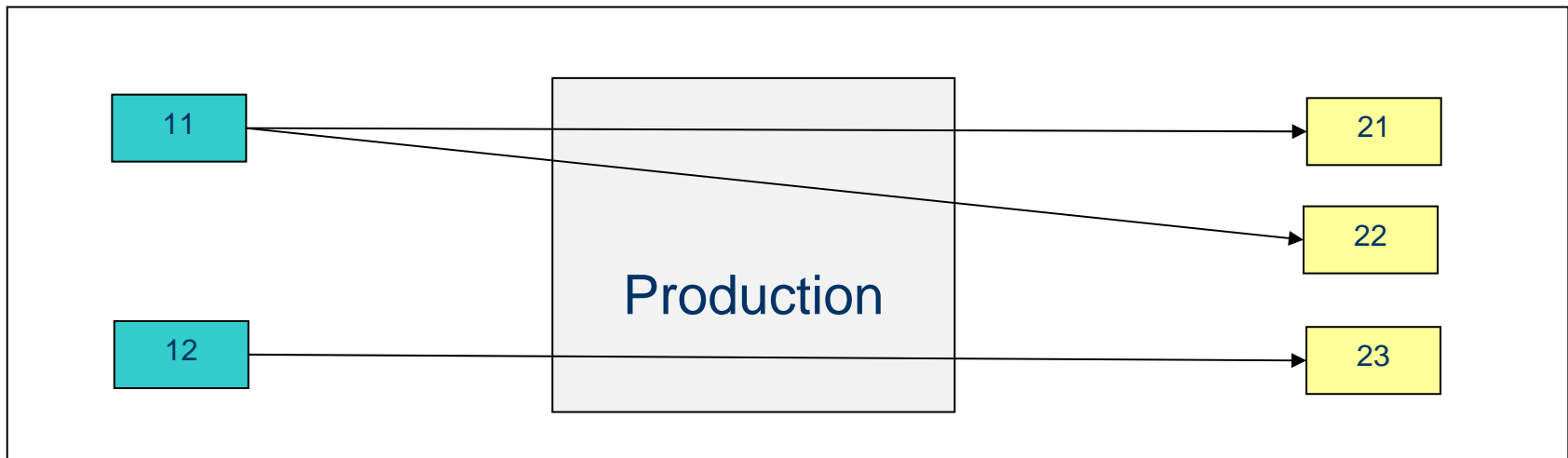
5 Farmed fish standard – a snapshot

Table 3 — Detailed information requirements for fish farms

| Data element | | Description | Examples | Categorisation | | |
|---|-----------------------------|---|--|----------------|--------|-----|
| | | | | Shall | Should | May |
| FISH FARMS | | | | | | |
| FFF01 | Food business ID | Name and address or GLN (n3+n13) of food business that operates fish farm establishment | Fjord Harvest Ltd 67345 Bergen Norway | x | | |
| FFF02 | Fish farm establishment ID | Name, address and registration number or GLN (n3+n13) of fish farm establishment | Fjord Harvest Ocean site 2 67345 Bergen Norway NTFS0003 NO | x | | |
| FFF03 | Fish farm GMP certification | Names of fish quality or food safety GMP schemes by which fish farm is certified | Debio | | | x |
| FOR EACH UNIT RECEIVED | | | | | | |
| Identities | | | | | | |
| FFF04 | Unit ID | SSCC (n2+n18) (if received as a logistic unit) or GTIN+ (n2+n14+AI's) (if received as a separate trade unit) | GTIN+: (01) 07012345000001 (10) 0000000125 | x | | |
| FFF05 | Trade unit IDs | If received as a logistic unit, the IDs of the trade units within the logistic unit. List of GTIN+ (n2+n14+AI's) | List of GTIN+ | x | | |
| Source | | | | | | |
| FFF06 | Previous Food Business ID | Name, address or GLN (n3+n13) of previous food business from whom the unit was received. (Hatchery or transporter, etc.). | Salmogen Breeding station 1 1234 Trondheim Norway | x | | |
| FFF07 | Date and time of reception | | 2002-09-28T12:00 | x | | |
| Control checks (either on logistic or separate trade units) | | | | | | |
| FFF08 | Temperature check | Temperature °C i.e. in received unit | 4,0 °C | | x | |

Good Traceability Practice (in short)

- 1 Define the Trade Unit in the business under examination.
- 2 Record IDs of received Trade Units
- 3 Record the ID of the Trade Units that goes into the production, and give all produced Trade Units a unique ID.
- 4 Link the ID of each produced Trade Unit to IDs of the received Trade Units that went into their production as ingredients or raw material.
- 5 Register the ID of all Trade Units dispatched.



Present Traceability research

- Standardisation
 - Methodology
 - Information content (language)
 - Electronic data exchange
- Development of traceability survey method
- Implementation of traceability procedures in case chains
- Implementation of traceability systems in case chains
- Development of traceability software (consultancy)
- Test and development of data capture technology (ID, temperature)
- Applications of traceability data !

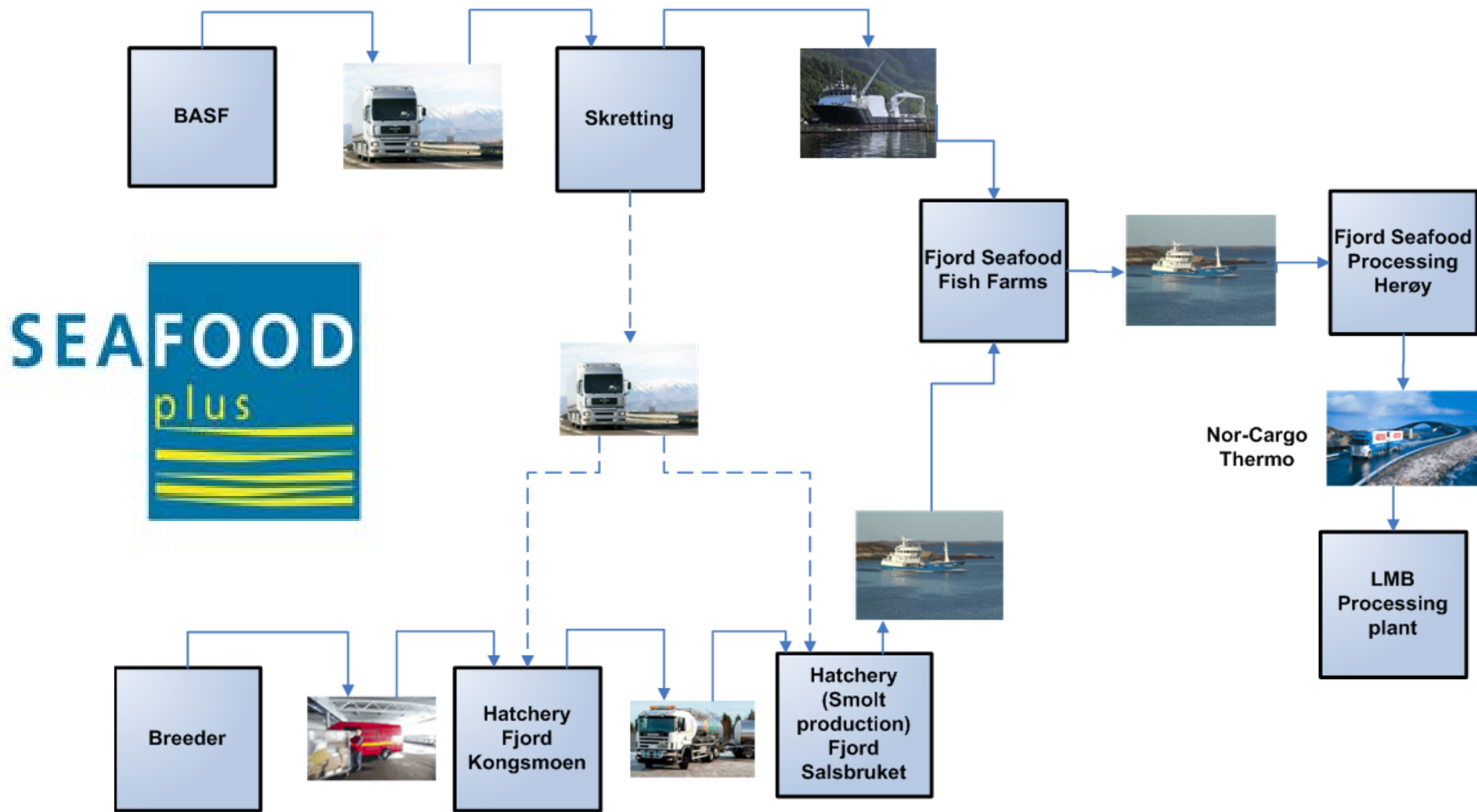
TraceFish implementations

- both projects and software

- Seafood Plus/ Telop Trace: Farmed salmon
 - Focussing on use of unique IDs, electronic exchange of data, automatic data capture.
- TraceTracker Innovation: Global Traceability Network – TT GTNet
 - Tracefish based system for Chain Traceability
- Seaborn, AkvaSmart, Farm Control and Maritech (e.g. Superior CV, WiseFish)
 - Use of traceability data in the QA system
- Farm Control and Maritech systems applies TraceFish terminology in XML messaging
- Trace project: 5 different food items
 - Focussing on Best practice, developing of a generic food traceability standard (e.g. TraceFood standard)
- Newlyn Port, Great Britain: TracFish compliant fish auction
 - Focussing on the registration of landings, labelling of cases, fish auctioning/and further sales
- IFSAT – Integrating Food Safety and Traceability
- The Tiara/Global Fish – Pelagic Fish Implementation
- TRAINS...

The Seafood Plus and Telop Trace Projects

- *The first ever automated global traceability chain in the food industry*



TRACE – 5 new food cases

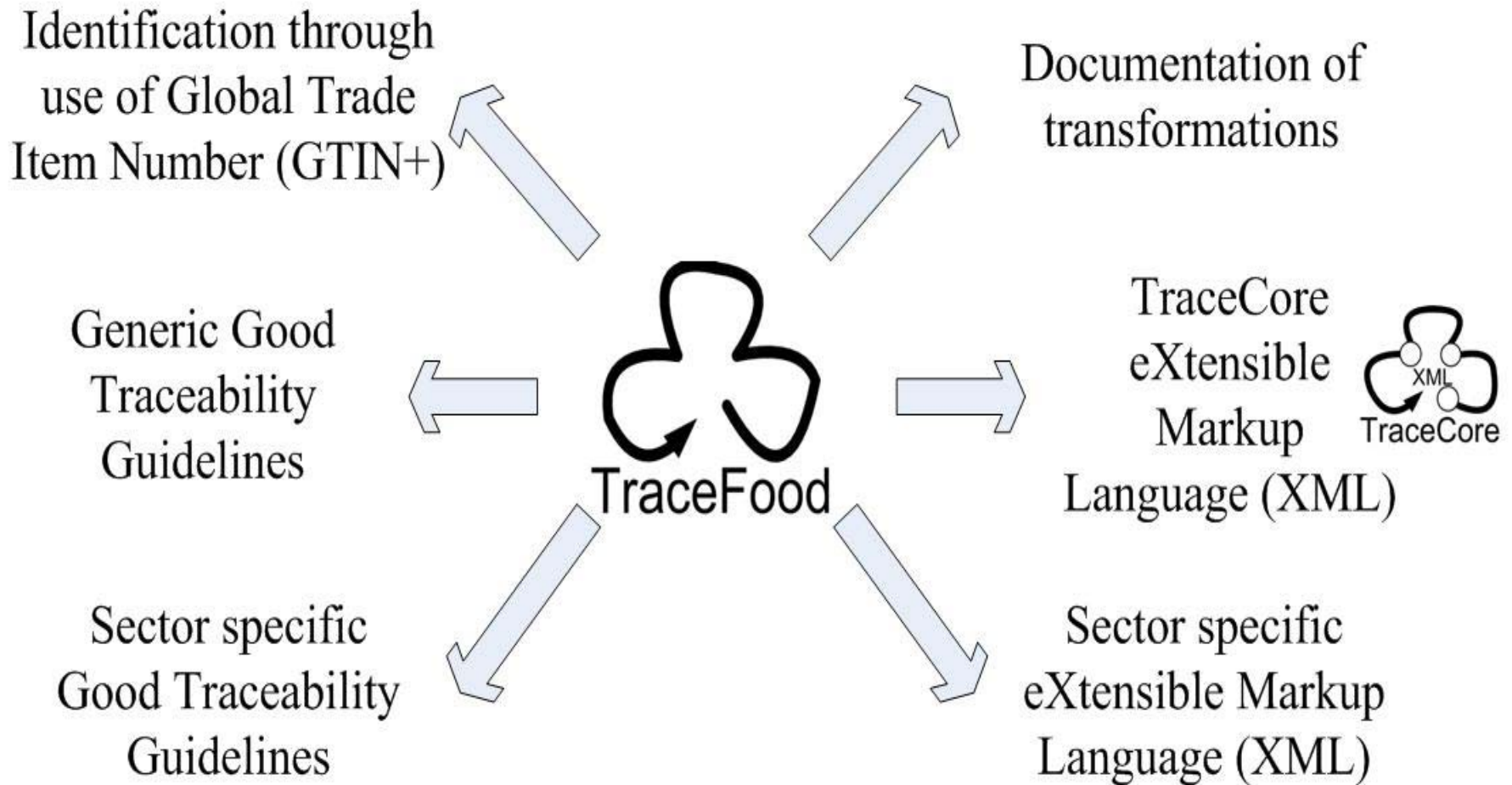
Development of a generic Food Traceability Standard

TraceFish has now been incorporated into the TraceFood model, developed as part of the TRACE project. The TraceFood model consists of a generic core of principles, standards and recommendations applicable for all foodstuffs. In addition, there are sector-specific extensions to the core, with the recommendations and parameters that relate to that food sector only.'

- Mineral water
- Honey
- Cereals (grain)
- Chicken
- Meat (Parma ham)



TraceFood Model



Newlyn Port Cornwall, Great Britain





Why is the TraceFish standard a tool for chain integration?

- Common vocabulary
- Harmonized guideline for data recording
- Harmonized guideline for data capture (best practice partly developed)
- Guideline (framework) for electronic exchange of data elements
- A standard method for keeping track of traceable units and their transformations

- This entails;
 - Transparency (possibility to choose and ..not choose)
 - Seamless information flow
 - Homogeneity and quality of basic data
 - Enabling benchmarking of data (production optimization, etc)

Also an advantage for research

- Homogeneity and quality of basic data also gives huge advantages for aquaculture research
- Often groups (samples) of eggs, juveniles and even larger fish are mixed without proper record keeping
- IDs of feed and other inputs are often not recorded
- If all data recording is linked to the traceable unit and transformations are logged, all information kept inside the internal ERP (or traceability) systems are perfect for research, like
 - Genetic effects (characteristics)
 - Effects of feed ingredients/recipe
 - Effects of slaughtering method
 - Effects of operational practice (density, feeding regime, size variation, etc)
 - Effects of physical properties on fish farm site (temp, O2, etc)

Example: Not possible to make research based on real industrial data

- Objective: Measure variation in filet yield based on fishing gear used (i.e.: net, long line, trawl)
- Result: Not possible to relate fish on the processing line to a fishing gear, since fish was merged together after landing without recording type of fishing gear.
- This fact made a dr. thesis impossible...

Conclusion

- Traceability is not only a requirement but also a business opportunity.
- TraceFish standards facilitates;
 - Fulfilment of food safety law and requirements
 - Standardized data registration and data quality
 - Electronic exchange and re-use of data in the value chain
- This makes both tracing, carrying out recalls and accessing/exchanging information easier
- The TraceFish standards already forms a basis for creating traceability standards for other food stuffs (terminology, Good Traceability Practice and structured electronic exchange)